CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. _____

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF KERN
FOR
CLOSURE
CHINA GRADE SANITARY LANDFILL
KERN COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The County of Kern (hereafter Discharger) owns and maintains a municipal solid waste landfill about six miles northeast of Bakersfield, in Sections 1 and 12, T29S, R28E, MDB&M, as shown in Attachment A, which is incorporated herein and made part of this Order.

2. The existing waste management facility covers approximately 117 acres with one unlined waste management unit (Unit) covering approximately 58 acres, as shown in Attachment B, which is incorporated herein and made part of this Order. The facility is comprised of Assessor's Parcel Numbers (APN) 436-010-02 and -03 and 436-062-05, -06, -07, and -09.

3. Landfilling operations began in 1970, were suspended in 1974, reopened in 1983, and ceased in April of 1992. A final cover was not constructed. The Code of Federal Regulations, Subtitle D, Part 258 applies to this unit since it received waste after 9 October 1991, but did not have a final cover installed by 9 October 1994.

4. On 16 June 2000, the Regional Board issued Order No. 5-00-155 which classified the Unit as a Class III landfill as defined in Title 27, California Code of Regulations, §20005, et seq. (Title 27).

5. This Order revises the existing Waste Discharge Requirements to provide for the construction of a final cover, regulate post-closure maintenance of the facility, and completion of the Evaluation Monitoring Program.

SITE DESCRIPTION

6. The measured hydraulic conductivity of the native soils underlying the Unit, as measured in laboratory tests, ranges between 2×10^{-4} and 3×10^{-8} cm/sec. The hydraulic conductivity of native soils, in the saturated zone, range between 4.7×10^{-4} and 7.8×10^{-5} cm/sec.

7. The closest potential Holocene fault is the Kern Bluff fault that trends across the Unit (see Attachment B). The fault has off-set modern soils by approximately two feet. Epicenters for Richter magnitude 2.5 and 2.4 earthquakes in 1954 and 1985, respectively correspond to the surface scarp of the Kern Bluff fault east of the landfill. A report prepared for the landfill concluded that available evidence indicates that the Kern Bluff fault is an active tectonic feature capable of producing surface rupture in the future.

8. Land within 1,000 feet of the facility is used for oil production and open space.

9. The facility receives an average of 6.7 inches of precipitation per year as shown on the Mean Annual Precipitation Map of Kern County prepared by the Kern County Public Works Department in 1985. The map was prepared based on data from the Department of Water Resources Bulletin No. 195 published in 1976. The mean pan evaporation is 73.4 inches per year as measured at the United States Department of Agriculture Station near Shafter.

10. The 100-year, 24-hour precipitation event is estimated to be 2.5 inches, based on data from the 100-year, 24-hour precipitation map prepared by the Kern County Public Works Department. Data for the map was provided by the National Weather Service and the United States Department of Agriculture, Natural Resource Conservation Service.

11. The waste management facility is not within a 100-year flood plain. The site is located on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 06007-007B, which shows the landfill and surrounding area is designated zone "C" indicating an area of minimal flooding outside the 100-year floodplain.

12. There are approximately 27 domestic, industrial, or agricultural groundwater supply wells within one mile of the site. No surface springs or other sources of groundwater supply have been observed.

13. There have been six oil wells drilled on the facility. Four oil wells have been drilled south of the Kern Bluff fault while two oil wells have been drilled north of the fault. Oil production in the immediate vicinity appears to be limited to the south side of the Kern Bluff fault.

SURFACE AND GROUND WATER CONDITIONS

14. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.

15. Surface drainage is toward the south and west in the Kern Uplands Hydrologic Area (558.90) of the Tulare Lake Basin.
16. The landfill is located along the eastern edge of the San Joaquin Valley near the boundary with the Sierra Nevada Mountains. The designated beneficial uses of the Valley Floor Waters, as specified in the Basin Plan, are agricultural, industrial service, and process supply; water contact and non-contact water recreation; warm fresh water habitat; preservation of rare, threatened and endangered species; and groundwater recharge.

17. The first encountered groundwater occurs in a perched groundwater-bearing zone that is about 263 feet to 265 feet below the native ground surface. One well, along the southern border of the facility, is completed in this zone. Groundwater elevations in the well completed in the perched groundwater-bearing zone range from approximately 536 feet MSL to 539 feet MSL. The perched groundwater-bearing zone has not been identified beneath the Unit.

18. Regional groundwater is about 156 feet to 550 feet below the native ground surface, depending on topography. Groundwater elevations in the regional groundwater zone range from 241 feet MSL to 395 feet MSL. The groundwater is unconfined. The depth to groundwater fluctuates seasonally as much as two feet.

19. Monitoring data indicates background water in the regional groundwater zone has a specific electrical conductivity (EC) ranging between 450 and 850 micromhos/cm, with total dissolved solids (TDS) ranging between 350 and 380 mg/l. There is no background water quality data for the perched water-bearing zone.

20. The groundwater flow direction in the regional groundwater zone is consistently toward the south. The average groundwater gradient is approximately 0.023 feet per foot. The average groundwater velocity is five feet per year. Since only one well is completed into the perched water-bearing zone, gradients and groundwater flow velocity cannot be calculated.

21. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.

WASTE AND SITE CLASSIFICATION

22. The Discharger previously disposed of municipal solid wastes, which are defined in §20164 of Title 27. Waste discharge ceased in April of 1992.

23. The site characteristics where the Unit is located (see Finding No. 6) do not meet the siting criteria for a new Class III landfill contained in §20260(a) and (b)(1) of Title 27. As such, the site is not suitable for operating new Units or lateral expansions of existing Units for

the discharge and containment of Class III wastes as described in Finding No. 22, without the

construction of additional waste containment features in accordance with §20260(b)(2) of Title 27 and State Water Resources Control Board Resolution No. 93-62.

GROUNDWATER AND VADOSE ZONE MONITORING

24. The monitoring system at the facility consists of seven groundwater monitoring wells, eight lysimeters, and three neutron- and gas-probe wells. Monitoring wells CG1-02 and CG1-07 are upgradient of the Unit. Monitoring wells CG1-01, CG1-05, and CG2-08 are cross-gradient along the Unit boundary. Monitoring wells CG2-01, CG2-12, and CG2-13 are downgradient of the Unit along the Point of Compliance. Monitoring well CG2-07 is completed in a perched water-bearing zone downgradient of the point of compliance. Monitoring well CG1-01 has not been operational since early 1994 because of a stuck pump. Monitoring wells CG1-02, CG1-05, and CG2-08 cannot be sampled because of insufficient depth of water in the wells, and monitoring well CG2-01 cannot be sampled because naturally occurring crude oil has accumulated in the well. Groundwater samples are collected from monitoring wells CG1-07, CG2-07, CG2-12, and CG2-13.

    The eight lysimeters are designated CG1-03, CG1-04, CG1-06, CG2-04, CG2-05, CG2-06, CG2-09, and CG2-11. Lysimeters CG1-04, CG2-03, CG2-05, and CG2-06 have been destroyed. Attempts are made to sample the lysimeters, but, historically, only CG2-04 has produced samples for chemical analysis. However, no samples have been obtained from CG2-04 since 2001.

    The combination neutron and landfill gas probes are designated CG1-06, CG2-09, and CG2-11, adjacent to the corresponding lysimeters. The gas probes are sampled periodically.

    Petroleum hydrocarbons have been detected in soil cuttings and/or groundwater samples from compliance wells CG2-01, CG2-12, and CG2-13, and the replacement water supply well.

25. Volatile organic compounds (VOCs) are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit.

26. Sections 20415(e)(8) and (9) of Title 27 provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a

release from a Unit in accordance with §20415(b)(1)(B)2.-4. of Title 27. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

27. The Regional Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify requirements to protect underground or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.

28. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.

29. The specified non-statistical method for evaluation of monitoring data, for non-naturally occurring waste constituents, provides two criteria (or triggers) for making the determination that there has been a release of waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

GROUNDWATER AND VADOSE ZONE DEGRADATION

30. "Pollution" means an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects: (1) such waters for beneficial uses, or (2) facilities which serve such beneficial uses [California Water Code, §13050(1)]. Water quality objectives are levels of constituents that are established for the reasonable protection of beneficial uses of waters. Exceedence of water quality objectives, including Maximum Contaminant Levels, constitutes pollution.

31. Section 13304(a) of the California Code states:

"Any person who has discharged or discharges waste into the waters of this state in violation of any waste discharge requirements or other order or prohibition issued by a regional board or the state board, or who has caused or permitted, causes or permits, or

threatens to cause or permit any waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the state and creates, or threatens to create, a condition of pollution or nuisance, shall upon order of the regional board, clean up the waste or abate the effects of the waste, or, in the case of threatened pollution or nuisance, take other necessary remedial action . . . ."

32. Section 13267(b)(1) of the California Water Code states:

"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region . . . shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."

33. Organic compounds have historically been detected in groundwater along the point of compliance prior to 2000. The organic compounds detected in groundwater include: 1,1-dichloroethane; 1,4-dichlorobenzene; acetone; bromoform; cis-1,2-dichloroethene; methyl tert-butyl ether; dichlorodifluoromethane; tetrachloroethene; toluene; trichloroethene; trichlorofluoromethane; bis-2-ethylhexyl phthlate; diethyl phthlate; and 1,1,1-trichloroethane. Benzene has historically been detected in groundwater at concentrations exceeding the maximum contaminant level as established by the Department of Health Services. Dichlorodifluoromethane has been detected in various groundwater wells since 2000.

34. Organic compounds have historically been detected in soil-pore liquid samples collected from lysimeter CG2-04. The organic compounds detected include: dichlorodifluoromethane; methylene chloride; tetrachloroethene; trichloroethene; and trichlorofluoromethane. Tetrachloroethene has been detected, in soil-pore liquid, at concentrations exceeding the maximum contaminant level as established by the Department of Health Services.

35. The groundwater degradation was caused by a release (discharge of waste) from the waste management unit (see Finding Nos. 33 and 34).

36. The current plume of degraded groundwater creates or threatens to create a condition of pollution or nuisance.

37. California Water Code §13304 authorizes the Regional Board to require dischargers to cleanup waste and abate the effects of waste. Cleanup and abatement measures include corrective action measures as required under Title 27.

38. An evaluation monitoring program has been implemented by the Discharger and a report is being prepared for review by Regional Board staff.

39. This order requires completion of the evaluation monitoring program and submission of a final feasibility study for corrective action.

EVALUATION MONITORING PROGRAM

40. Subsections 20385(a) (2) and (4) of Title 27 requires the Discharger to initiate an evaluation monitoring program whenever there is significant evidence of a release from the Unit during a detection monitoring program, and to institute a corrective action program when the Regional Board determines that the assessment of the nature and extent of the release and the design of a corrective action program have been satisfactorily completed. These are considered cleanup and abatement activities pursuant to California Water Code §13304. These programs must be applied to all water bearing zones affected by the release, including perched water zones.

41. An evaluation monitoring program is used to assess the nature and extent of a release from a Unit and to design a corrective action program in accordance with §20430 of Title 27 [Title 27, §20425(a)(2)]. In assessing the nature and extent of a release from a Unit, the Discharger is obligated to include a determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release [Title 27, §20425(b)]. The extent of a release is determined when the constituents of concern are not detected above their respective water quality protection standard at groundwater sampling locations out from all sides of the Unit where the constituents of concern have exceeded the water quality protection standard.

42. Evaluation monitoring is required to be implemented when the detection monitoring program determines that waste constituents have leaked from the Unit (see Finding Nos. 33 and 34). In the case of organic compounds that are not naturally occurring, their presence in samples from detection monitoring wells is evidence of a release from the Unit. For naturally occurring compounds and constituents, evidence of a release is based on a measurably significant increase in their concentration(s) above the upper tolerance limit established in the water quality protection standard.

43. Non-naturally occurring organic compounds have been continuously detected in samples from the detection monitoring wells (see Finding No. 33). This detection of waste

constituents constitutes evidence of a release from the Unit. The Discharger is therefore obligated to complete an evaluation monitoring program in accordance with §20425 of Title 27 in order to determine the extent of migration of the waste constituents, to assess their potential threat to the beneficial uses of the areal groundwater, and to prepare a corrective action program in accordance with §20430 of Title 27.

44. Section 20420(k)(5) of Title 27 requires that within 90 days of determining a measurably significant evidence of a release, a discharger shall submit to the Regional Board an amended report of waste discharge, including information specified in §20420(k)(5) of Title 27, to establish an evaluation monitoring program meeting the provisions of §20425 of Title 27.

45. Section 20420(k)(6) of Title 27 requires that within 180 days of determining a measurably significant evidence of a release, a discharger shall submit an engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.

46. Section 20425(b) of Title 27 requires a discharger to complete an evaluation of the nature and extent of a release from the Unit and to submit the assessment to the Regional Board within 90 days of establishing an evaluation monitoring program.

47. Section 20425(c) of Title 27 requires a discharger to submit an updated engineering feasibility study for corrective action based on the results of the evaluation monitoring program and an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 to the Regional Board within 90 days of establishing an evaluation monitoring program.

48. Section 20425(d) of Title 27 requires a discharger to submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 to the Regional Board within 90 days of establishing an evaluation monitoring program. The proposed corrective action program is to be based on the data collected pursuant to §20425(b) of Title 27, and on the engineering feasibility study for corrective action submitted pursuant to §20425(c) of Title 27.

49. The Discharger has not complied with the time frames contained in Title 27 for the completion of an evaluation monitoring program and the submission of a proposed corrective action program (see Finding Nos. 44, 45, 46, and 47), and is therefore in non-compliance with the applicable provisions of Title 27.

50. The Discharger, being a public entity, is unable to comply with the regulatory time frames contained in Title 27 due to the time required to conduct the public bidding process and budgetary constraints. As such, the Discharger has requested an alternate time schedule by which to comply with the evaluation monitoring program requirements contained in Title 27.

51. This Order establishes a time schedule for the completion of an evaluation monitoring program, the submission of an updated engineering feasibility study for the establishment of a corrective action program, and the submission of a report of waste discharge for a corrective action program. Failure to comply with the time schedule contained in this Order may subject the Discharger to a civil monetary liability.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

52. The current interim cover on the landfill consists of a minimum of two feet of soil placed on top of refuse. The current cover does not meet the final cover system requirements of Title 27.

53. Closure and post-closure maintenance requirements for landfills are contained in §21090 of Title 27. The prescriptive standard for the final cover is contained in §21090(a) of Title 27.

54. Section 20080(b) of Title 27 allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with §20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in §20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative cover system is consistent with the performance goals addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with §20080(b)(2) of Title 27.

55. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.

56. The Discharger submitted a design plan for the proposed closure of the landfill in a Final Closure Plan dated September 2000. The Final Closure and Post-Closure Maintenance Plans were determined to be adequate in a letter from the Regional Board dated 6 July 2001. The plan proposed the construction of an engineered alternative in lieu of the

prescriptive cover design specified in §21090(a) of Title 27. The proposed engineered alternative is an evapo-transpirative design consisting of a vegetated soil layer.

57. The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design.

58. A test pad was constructed on the waste management facility to demonstrate that an evapo-transpirative cover constructed of soil from a nearby borrow source would be an appropriate engineered alternative to the prescriptive design.

59. The test pad successfully demonstrated that an evapo-transpirative cover constructed in that locality of soil from the local borrow source will likely perform in a manner consistent with the performance goals contained in Title 27.

60. The Discharger proposes to construct the final cover of soils from the same borrow source that was used to construct the test pad.

61. Section 21090(a)(4)(A) of Title 27 requires that a periodic leak search, including a method for identifying and repairing breaches in "the low-hydraulic conductivity layer", be a component of the cover maintenance plan.

62. A common way to conduct a leak search on a cover that utilizes a low-hydraulic conductivity layer as part of its design is to monitor the surface of the cover for landfill gas emissions.

63. In an evapo-transpirative cover design, the low-hydraulic conductivity layer is replaced by a vegetated soil layer that is engineered and constructed to absorb moisture during precipitation events and expel moisture by evaporation and transpiration before it flows through the bottom of the cover.

64. Landfill gas emissions do not definitely indicate a leak in an evapo-transpirative cover. A leak in this kind of cover will be detected by using a device that directly measures moisture flux through the cover, such as a pan lysimeter. This Order requires the Discharger to construct a pan lysimeter(s) beneath the final cover.

65. The Discharger will submit the final construction and design plans for the final cover, and the Construction Quality Assurance Plan, for review and approval of the Executive Officer prior to construction of the final cover.

66. Construction will proceed only after all applicable construction quality assurance plans

have been approved by the Executive Officer.

CEQA AND OTHER CONSIDERATIONS

67. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301.

68. This order implements:

    a. *The Water Quality Control Plan for the Tulare Lake Basin, Second Edition*;

    b. The prescriptive standards and performance goals of Chapters 1 through 7, Subdivision 1, Division 2, Title 27, of the California Code of Regulations, effective 18 July 1997, and subsequent revisions;

    c. The prescriptive standards and performance criteria of RCRA Subtitle D, Part 258; and

    d. State Water Resources Control Board Resolution No. 93-62, *Policy for Regulation of Discharges of Municipal Solid Waste*, adopted 17 June 1993.

PROCEDURAL REQUIREMENTS

69. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

70. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

71. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

72. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board to review the action in accordance with Sections 2050 through 2068, Title 23, California Code of Regulations. The petition must be received by the State Water Resources Control Board, Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812, within 30 days of the date of issuance of this Order. Copies of the laws and regulations applicable to the filing of a petition are available on the Internet at http://www.waterboards.ca.gov/water_laws/index.html and will be provided on request.

IT IS HEREBY ORDERED, pursuant to Sections 13263 and 13267 of the California Water Code, that Order No. 5-00-155 is rescinded, and that the County of Kern, its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any additional waste at this facility is prohibited.

2. The discharged wastes shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or nonstatistical data analysis method and retest method listed in this Order, the Monitoring and Reporting Program, or the Standard Provisions and Reporting Requirements.

3. The discharge of solid waste, liquid waste, leachate, or waste constituents shall neither cause nor contribute to any degradation, contamination, pollution, or nuisance to surface waters, ponded water, or surface water drainage courses.

4. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

B. FACILITY SPECIFICATIONS

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall immediately notify the Regional Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions that could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

3. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control, fire suppression, and construction.
4. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

5. Methane and other landfill gases shall be adequately vented, removed from the Unit, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

6. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

7. The Discharger shall maintain a *Storm Water Pollution Prevention Plan* and *Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site, until closure of the landfill is complete.

C. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall submit for Executive Officer review and approval **prior to** construction, design plans and specifications for a final cover system that includes a Construction Quality Assurance Plan meeting the requirements of §20324 of Title 27.

2. **By 31 December 2007**, the final cover system shall be constructed with an engineered alternative design known as an evapo-transpirative or monolithic design. The cover shall, at a minimum, consist of a three-foot thick vegetated soil layer placed over the existing interim cover soil. The soil layer shall be placed in such a manner that vegetative growth is assured while structural integrity is maintained.

3. One or more pan lysimeters shall be constructed on the upper deck of the Unit beneath the vegetated soil layer to monitor the effectiveness of the final cover in accordance with a plan approved by the Executive Officer.

4. The Discharger may propose changes to the final cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed final cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Regional Board.

5. Construction shall proceed only after all applicable construction quality assurance plans have been approved by Executive Officer.

6. **By 31 March 2008**, following the completion of construction of the final cover system, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted to the Executive Officer for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, with this order, and with the standards and performance goals of Title 27.

7. A third party independent of both the Discharger and the construction contractor shall perform all of the construction quality assurance (CQA) monitoring and testing during the construction of a liner system. The CQA program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer.

D. DETECTION MONITORING SPECIFICATIONS

1. The Discharger shall comply with Monitoring and Reporting Program No. ___, which is incorporated into and made part of this Order.

2. The Discharger shall implement the groundwater detection monitoring program in compliance with Title 27 as approved by the Executive Officer.

3. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program No. _____.

4. The Discharger shall provide Regional Board staff a minimum of **one week** notification prior to commencing any field activities related to the installation, repair, or abandonment of monitoring devices. At the beginning of each sampling period, in accordance with B. Reporting in Monitoring and Reporting Program No. _____, a schedule shall be submitted listing anticipated sampling dates for that reporting period. If Regional Board staff wishes to observe sampling activities, the Discharger will be notified at least one week prior to the scheduled date.

5. The Discharger shall comply with the Water Quality Protection Standard (as defined in §20390 of Title 27) which is specified in Monitoring and Reporting Program No. _____ and the Standard Provisions and Reporting Requirements, dated April 2000.

6. The Water Quality Protection Standard for organic compounds which are not naturally occurring shall be taken as the detection limit of the analytical method used (i.e., US-EPA methods 8260 and 8270). The presence of non-naturally occurring

organic compounds in samples from detection monitoring wells is evidence of a release from the Unit unless the Discharger can demonstrate that the Unit is not the cause pursuant to §20420(k)(7) of Title 27.

7. The concentrations of the constituents of concern in waters passing the Point of Compliance shall not exceed the concentration limits established pursuant to Monitoring and Reporting Program No. _____.

8. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in Monitoring and Reporting Program No. _____ and §20415(e) of Title 27.

9. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible.

10. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) *Methods for the Analysis of Organics in Water and Wastewater* (USEPA 600 Series), (2) *Test Methods for Evaluating Solid Waste* (SW-846, latest edition), and (3) *Methods for Chemical Analysis of Water and Wastes* (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.

11. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.

12. The **methods of analysis and the detection limits** used shall be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from Background Monitoring Points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

13. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

15. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

16. The **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, and analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

17. **Unknown chromatographic** peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.

18. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the

PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the method detection limit (MDL) and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

19. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). The analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board staff.

20. The Discharger shall use the following nonstatistical method specified in Detection Monitoring Specification D.21 for all constituents which are not amenable to the statistical tests above (i.e., less than 10% of the data from background samples that equal or exceed their respective MDL). This includes all constituents in the Monitoring Parameters and for all Constituents of Concern (COC) found in groundwater and unsaturated zone (in soil-pore liquid or -gas). Each constituent at a monitoring point shall be determined to meet this criterion based on either:

    a. The results from a single sample for that constituent, taken during that reporting period from that monitoring point; or

    b. If more than one sample has been taken during a reporting period from a monitoring point, the results from the sample which contains the largest number of qualifying constituents shall be used.

    c. Background for water samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.

21. The nonstatistical method shall be implemented as follows:

    a. For every compliance well, regardless of the monitoring program, the Discharger shall use this data analysis method, jointly, for all monitoring parameters and COCs that are detected in less than 10% of background samples. Any COC that triggers a discrete retest per this method shall be added to the monitoring parameter list:

       Triggers — From the monitoring parameters and COC list identify each constituent in the current sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication [or, for a retest, provide a measurably significant indication] of a change in the nature or extent of the release, at that well, if either:

       1) The data contains two or more qualifying monitoring parameters and/or COCs that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or

       2) The data contains one qualifying monitoring parameter and/or COC that equals or exceeds its PQL.

    b. Discrete Retest [27CCR §20415(e)(8)(E)]:

       1) In the event that the Discharger concludes (pursuant to paragraph 21.a., above) that there is a preliminary indication, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the indicating compliance well.

       2) For any given compliance well retest sample, the Discharger shall include, in the retest analysis, only the laboratory analytical results for those constituents indicated in that well's original test. As soon as the retest data are available, the Discharger shall apply the same test [under 21.a.], to separately analyze each of the two suites of retest data at that compliance well.

       3) If either (or both) of the retest samples meets either (or both) of the triggers under 21.a., then the Discharger shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample(s).

22. If the Executive Officer determines, after reviewing the submitted report, that the detected constituent(s) most likely originated from the Unit(s), the Discharger shall **immediately** implement the requirements of XI. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements.

E. EVALUATION MONITORING SPECIFICATIONS

1. The Regional Board has identified the County of Kern as the primary or active responsible discharger for purposes of California Water Code, Section 13307.1. **By 1 December 2005**, the County of Kern shall submit a letter to the Regional Board that identifies all current record owners of fee title of the site. For purposes of this provision, the site includes the landfill property. The County of Kern shall certify to the Regional Board that the required notifications have been made at the time a cleanup or site closure proposal is made or before the Regional Board makes a determination that no further action is required. If property ownership changes in the future, the County of Kern must notify the Regional Board **within 30 calendar days** of the date on which it is informed of the change.

2. **By 31 August 2006**, the Discharger shall complete an Evaluation Monitoring Program to the satisfaction of the Executive Officer and that meets the provisions of §20425(b) of Title 27, and a report shall be submitted that describes all actions and monitoring taken to complete the Evaluation Monitoring Program.

3. The Discharger shall submit a **semi-annual** status report to the Regional Board in accordance with the schedule for semi-annual self-monitoring reports contained in Monitoring and Reporting Program No. _____. The report shall describe the progress made to comply with the Evaluation Monitoring Specifications of this Order. The semi-annual status report shall include a description of all activities, water quality monitoring, and water quality analyses conducted, since the previous semi-annual status report was prepared, to comply with this Order. More frequent reporting may be required as necessary to ensure the protection of human health or the environment.

4. At a minimum, the following documentation is needed to complete the Evaluation Monitoring Program:

    a. An analysis of all the information gathered to determine the lateral and vertical extent of each waste constituent released from the Unit. This assessment shall include a determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release.

b. An assessment of the lateral and vertical extent for each waste constituent in groundwater shall be determined when the constituent no longer meets the trigger criteria for detection in accordance with the detection monitoring program contained in Monitoring and Reporting Program No. ___. For a non-naturally occurring waste constituent, the extent will be determined when groundwater sample analyses do not detect any non-naturally occurring waste constituents at or above the practical quantitation limit (PQL), or no more than one non-naturally occurring waste constituent is detected at or above the method detection limit (MDL) and below the PQL. For naturally occurring waste constituents, or waste constituents that have a statistically derived water quality protection standard, the extent will be determined when groundwater sample analyses do not detect a released constituent at a "measurably significant" concentration as defined by the water quality protection standard.

c. A determination of the water quality protection standard for evaluation monitoring shall be based on a sufficient number of background monitoring points that represent the quality of groundwater (organic and inorganic compounds) in the uppermost aquifer that has not been affected by a release from the Unit in accordance with §20415(b)(1) and §20415(b)(2) of Title 27.

d. A table listing the constituents of concern that includes the concentration limit for metals and general water quality parameters based on a statistical evaluation of the background concentrations of these parameters.

e. A description of how the determination of the spatial distribution and concentration of each constituent of concern throughout the zone affected by the release was accomplished.

5. By **1 December 2006**, the Discharger shall submit, pursuant to §20425(c) of Title 27, a report containing a final engineering feasibility study for corrective action pursuant to §20420(k)(6) of Title 27. At a minimum, the feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern.
6. By **1 March 2007**, the Discharger shall submit, pursuant to §20425(d) of Title 27, an amended Report of Waste Discharge, based on the data collected pursuant to Evaluation Monitoring Specification E.4 and on the engineering feasibility study submitted pursuant to Evaluation Monitoring Specification E.5, to establish a corrective action program meeting the requirements of §20430 of Title 27. The amended Report of Waste Discharge shall contain a plan and proposed time schedule to cleanup and abate the effects of all waste discharged to the soil and groundwater from the Unit.

7. In conjunction with the assessment conducted pursuant to Evaluation Monitoring Specification E.4, and while awaiting final approval of the amended Report of Waste Discharge, submitted pursuant to Evaluation Monitoring Specification E.6, the Discharger shall monitor groundwater, surface water, and the unsaturated zone to evaluate changes in water quality resulting from the release from the Unit. In conducting this monitoring, the Discharger shall comply with the requirements of §20425(e) of Title 27.

F. FINAL COVER MONITORING SPECIFICATIONS

1. The Discharger shall monitor the final cover in accordance with the Post-Closure Maintenance Plan and the Monitoring and Reporting Program.

2. Monitoring of the final cover shall include inspecting and recording the volume of moisture collected by the pan lysimeter(s) (see Construction Specification C.3).

3. The Discharger shall submit a report for Executive Officer review and approval by **31 March 2008** proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) with supporting documentation.

4. In the event the pan lysimeter(s) detects significant moisture infiltration, then, **within 120 days,** the Discharger shall submit a plan and time schedule, for Executive Officer review and approval, to evaluate the problem, and recommend and implement corrective measures.

G. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the offices of the Kern County Waste Management Department, and make it available during working hours to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.

3. The Discharger shall comply with Monitoring and Reporting Program No. _____, which is incorporated into and made part of this Order.

4. The Discharger shall comply with the applicable portions of the *Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous*

Solid Waste Discharges Regulated by Title 27 and/or Subtitle D (27 CCR §20005 et seq. and 40 CFR 258 et seq.), dated April 2000, which are hereby incorporated into this Order.

5. In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Regional Board office by telephone **as soon as** it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

6. All reports and transmittal letters shall be signed by persons identified below:

   a. For a corporation: by a principal executive officer of at least the level of senior vice-president.

   b. For a partnership or sole proprietorship: by a general partner or the proprietor.

   c. For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

   d. A duly authorized representative of a person designated in a, b or c above if;

      1) the authorization is made in writing by a person described in a, b, or c of this provision;

      2) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
      3) the written authorization is submitted to the Regional Board.

   e. Any person signing a document under this Section shall make the following certification:

      "I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I

am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

7. The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

8. The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the Unit(s) and during subsequent use of the property for other purposes.

9. The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of the Order.

10. To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Regional Board requesting transfer of the Order within 14 days of assuming ownership or operation of this facility. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Regional Board, and a statement. The statement shall comply with the signatory requirements contained in Provision G.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer of this Order shall be approved or disapproved by the Regional Board.

11. The Discharger shall conduct an annual review of the financial assurance for initiating and completing corrective action, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

12. The Discharger shall conduct an annual review of the financial assurance for closure and post-closure maintenance, and submit a report for Executive Officer review and approval. The assurances of financial responsibility shall provide that funds for closure and post-closure maintenance shall be available to the Regional Board upon

the issuance of any order under California Water Code, Division 7, Chapter 5. The Discharger shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

13. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

Task	Compliance Date
a. Construction Plans	
Submit construction and design plans for Executive Officer review and approval. (see Construction Specification C.1)	**Prior to construction**
b. Final Cover Construction	
Complete final cover construction in accordance with approved construction plans. (see Construction Specification C.2)	**31 December 2007**
c. Construction Report	
Submit a construction report upon completion demonstrating construction was in accordance with approved construction plans for Executive Officer review and approval. (see Construction Specification C.6)	**31 March 2008**

Task	Compliance Date
d. Evaluation Monitoring	
1) Submit a letter identifying all current records owners of fee title of the site. (See Evaluation Monitoring Specification No. E.1)	**1 December 2005**
2) Submit a report describing completion of the Evaluation Monitoring Program.	**31 August 2006**

(see Evaluation Monitoring Specification No. E.2)

3) Submit a final engineering feasibility study for a corrective action program. (see Evaluation Monitoring Specification No. E.5) — **1 December 2006**

4) Submit an amended report of waste discharge to establish a corrective action program. (see Evaluation Monitoring Specification No. E.6) — **1 March 2007**

e. Infiltration Report

Submit a report proposing what amount of moisture would constitute significant infiltration through the final cover as measured by the pan lysimeter(s) for Executive officer review and approval. (See Final Cover Monitoring Specification F.3) — **31 March 2008**

f. Financial Assurance Review

1) Annual Review of Financial Assurance for initiating and completing corrective action (see Provision F.11.) — **30 April each year**

2) Annual Review of Financial Assurance for closure and post-closure maintenance (see Provision F.12.) — **30 April each year**

If, in the opinion of the Executive Officer, the Discharger fails to comply with the provision of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement or issue a complaint for Administrative Civil Liability.

I, THOMAS R. PINKOS, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on _____.

_____
THOMAS R. PINKOS, Executive Officer

REH:reh/rac:9/26/2005